

Mineral Industry Surveys

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VANADIUM IN JULY 2005

Reported domestic consumption of vanadium in July 2005 was about 3% less than that of the previous month and was about 5% less than that of July 2004, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 398 metric tons (t) at the beginning of 2005 and 270 t at the end of July.

According to Ryan's Notes (2005b), U.S. ferrovanadium (FeV) prices ranged from \$33.722 to \$35.833 per pound of vanadium content in July, as compared with \$46.625 to \$48.625 in June. European FeV prices ranged from \$65.556 to \$70.222 per kilogram (kg) in July, as compared with \$93.375 to \$97.625 in June. Vanadium pentoxide (V_2O_5) prices ranged from \$15.222 to \$17.556 per pound in July as compared with \$20.625 to \$21.750 in June.

According to traders, the rapid rise in vanadium prices in the first quarter of 2005 was driven by demand in China. Vanadium demand in China dropped sharply in the second quarter. In 2004, Chinese producers of high-strength rebar switched to higher vanadium content steel, but the producers convinced the government to eliminate the vanadium requirement for the steel. Some mills substituted columbium (niobium) for vanadium, and some consumers began using twice the amount of non-

vanadium rebar to achieve the same strength requirements. At the same time, Chinese steel mills generated more vanadium-bearing slag causing vanadium supply in China to increase. After becoming a net importer of vanadium 2 years ago, China seems to have accumulated a surplus (Ryan's Notes, 2005a).

Russian vanadium producer Vanadium Tulachermet (Tula) not only strengthened its position in the vanadium market when it purchased 50% of Nikom AS, the Czech Republic FeV conversion facility, it also changed the dynamics of the industry. The deal gave Tula exclusive rights to convert V_2O_5 to FeV, effectively eliminating the possibility of traders converting material for sale on the free market. Tula also announced plans to invest in Nikom to create a reliable warehouse facility in Europe to improve the logistics of supply (Metal Bulletin, 2005).

References Cited

- Metal Bulletin, 2005, Tula takes charge, Metal Bulletin, no. 8901, July 11, p. 8.
Ryan's Notes, 2005a, Ferroalloy notes: Ryan's Notes, v. 11, no. 30, July 25, p. 1.
Ryan's Notes, 2005b, [untitled]: Ryan's Notes, v. 11, no. 31, August 1, p. 10.

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM¹

(Kilograms, contained vanadium)

	2004 ^p		2005			
			June		July	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	3,510,000	298,000	272,000	240,000	256,000	238,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other ³	214,000	101,000	13,000	50,100	20,600	32,600
Total	3,730,000	398,000	285,000	290,000	276,000	270,000

^pPreliminary. W Withheld to avoid disclosing company proprietary data; included with "Other."

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

³Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE¹

(Kilograms, contained vanadium)

	2004 ^p	2005		
		June	July	Year to date
Steel:				
Carbon	996,000	61,700	62,800	547,000
High-strength low-alloy	1,150,000	82,100	83,900	630,000
Stainless and heat-resisting	64,500	5,080	5,080	34,600
Full alloy	1,060,000	82,600	71,400	595,000
Tool	238,000	40,700	32,300	244,000
Total steel	3,510,000	272,000	255,000	2,050,000
Superalloys	8,350	764	780	5,770
Miscellaneous and unspecified ²	211,000	12,400	20,100	379,000
Total consumption	3,730,000	285,000	276,000	2,440,000

^pPreliminary.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND
VANADIUM METAL, INCLUDING WASTE AND SCRAP¹

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
Imports for consumption:				
2004	19,100	\$66,700	31,200	\$1,710,000
2005:				
April	--	--	9,070	285,000
May	--	--	1,390	201,000
June:				
Germany	--	--	11,500	507,000
Total	--	--	11,500	507,000
Year to date	1	3,770	26,900	1,580,000
Exports:				
2004	10,900,000	24,000,000	522,000	7,760,000
2005:				
April	1,010,000	3,690,000	43,900	3,780,000
May	968,000	2,230,000	5,720	442,000
June:				
Australia	45,700	188,000	--	--
Austria	--	--	32	43,900
Barbados	270	3,500	--	--
Belgium	8,160	266,000	--	--
Brazil	636	18,700	--	--
Canada	24,200	46,300	--	--
Denmark	451	5,870	--	--
Germany	207	3,540	56	74,100
India	88,100	165,000	--	--
Japan	21,500	2,050,000	5,000	200,000
Malaysia	1,270	16,500	--	--
Mexico	974,000	2,080,000	--	--
Spain	660	2,840	--	--
Taiwan	9,910	47,700	--	--
Thailand	34,900	164,000	--	--
United Kingdom	10,100	59,000	250	20,200
Total	1,220,000	5,110,000	5,340	338,000
Year to date	5,530,000	17,000,000	143,000	6,940,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND
OTHER OXIDES AND HYDROXIDES OF VANADIUM¹

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2004	3,020,000	\$62,100,000	1,040,000	\$8,600,000	120,000	\$1,650,000
2005:						
April	305,000	14,700,000	135,000	6,000,000	13,700	589,000
May	197,000	14,800,000	32,800	2,710,000	8,430	740,000
June:						
Austria	--	--	4,160	398,000	8,430	842,000
Canada	5,220	236,000	--	--	--	--
China	--	--	9,000	799,000	--	--
Czech Republic	65,000	7,750,000	--	--	--	--
Germany	209	12,700	--	--	--	--
Japan	2,580	117,000	--	--	--	--
Korea, Republic of	13,800	1,430,000	--	--	--	--
South Africa	--	--	50,000	3,630,000	--	--
Swaziland	95,800	4,470,000	--	--	--	--
Total	183,000	14,000,000	63,100	4,830,000	8,430	842,000
Year to date ³	11,000,000	77,300,000	510,000	20,700,000	47,400	2,850,000
Exports:						
2004	267,000	8,770,000	240,000	2,090,000	584,000	4,140,000
2005:						
April	65,800	3,770,000	10,200	389,000	83,100	740,000
May	147,000	4,240,000	77,500	1,210,000	92,200	2,450,000
June:						
Brazil	--	--	--	--	562	5,000
Canada	7,120	138,000	--	--	15,900	142,000
China	--	--	--	--	9,680	131,000
Italy	--	--	23,100	615,000	--	--
Russia	--	--	--	--	48,200	3,920,000
Trinidad & Tobago	--	--	914	45,800	3,410	16,500
Total	7,120	138,000	24,000	661,000	77,800	4,210,000
Year to date	251,000	9,410,000	125,000	2,510,000	402,000	9,320,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include catalysts containing vanadium pentoxide.

³May include revisions to previous months data.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG¹

(Kilograms, contained vanadium pentoxide)

	Ash and residues		Ash and residues (not from the manufacture of iron and steel)		Slag, from the manufacture of iron and steel	
	Quantity	Value	Quantity	Value	Quantity	Value
2004	4,260,000	\$8,520,000	11,100,000	\$2,000,000	244,000,000	\$10,400,000
2005:						
April	780,000	1,800,000	612,000	89,900	54,800,000	1,130,000
May	60,000	120,000	907,000	103,000	47,200,000	948,000
June:						
Canada	--	--	600,000	101,000	84,600,000	1,260,000
Mexico	800,000	1,920,000	--	--	--	--
South Africa	--	--	--	--	1,500,000	501,000
Total	800,000	1,920,000	600,000	101,000	86,100,000	1,760,000
Year to date	2,290,000	4,740,000	3,520,000	572,000	188,000,000	4,380,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS
VANADIUM CHEMICALS¹

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2004	500	\$19,100	74,700	\$1,150,000
2005:				
April	--	--	11,400	204,000
May	--	--	12,900	389,000
June:				
Germany	--	--	6,360	166,000
Total	--	--	6,360	166,000
Year to date	--	--	37,600	972,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.